



State Energy Codes



EPA's State and Local Climate Change Program helps build awareness, expertise, and capacity to address the risk of climate change at the state and local levels. The program provides guidance and technical information to help state and local agencies prepare inventories of greenhouse gas emissions, develop action plans to reduce emissions, and educate their constituents. By emphasizing the many economic and environmental benefits of greenhouse gas reductions, the program encourages state and local decisionmakers to implement voluntary measures to reduce their greenhouse gas emissions.

Energy Codes

Energy codes can be a cost-effective, efficient way to limit greenhouse gas emissions from energy used in new and existing buildings. Residential and commercial buildings together account for about 35 percent of U.S. carbon dioxide emissions from the combustion of fossil fuels. Energy-efficient building designs and technologies can reduce emissions while providing financial benefits to homeowners, tenants, and owners of commercial buildings.

Energy codes help ensure that designers and builders will construct new buildings or retrofit existing ones to an improved level of energy efficiency. Codes can eliminate inefficient construction practices and technologies with little or no increase in project cost. At the same time, they may provide significant cost savings in monthly energy bills.

The U.S. Department of Energy estimates that energy use in buildings is growing by 3.3 percent annually, with households and buildings spending a total of \$195 billion each year on energy. According to DOE, a 30 percent improvement in U.S. building energy efficiency would reduce consumer costs by \$38 billion within 15 years. DOE calculates that updating energy codes and improving implementation could reduce total emissions and energy use in new buildings by 35 percent from 1990 levels by the year 2000.

The 1992 National Energy Policy Act required states to determine if they should upgrade their energy codes to meet or exceed the Council of American Building Officials' 1992 Model Energy Code for residential construction. The Model Energy Code has since been revised and updated, and the most current version is now known as the International Energy Conservation Code.

More than half of U.S. states have adopted and implemented residential energy codes that meet or exceed the 1992 Model Energy Code. A growing number have adopted or are considering adopting subsequent versions of the code. In addition, half the states have adopted and implemented energy codes that meet the building industry's consensus energy standards for commercial buildings.

Going Beyond the Code

Voluntary programs for building energy ratings, such as the Home Energy Rating Systems established by most states, encourage builders to go beyond the minimum standards set by the codes. These systems rate homes according to their energy efficiency, allowing lenders to take energy cost savings into account when underwriting mortgage loans. Voluntary rating systems may be the only feasible choice in states where builders strongly oppose the development of mandatory codes.

Combining energy codes with voluntary energy rating systems can be a powerful strategy for reducing energy use in buildings: The code establishes a "floor" for minimum efficiency while the rating system encourages innovation and provides incentives for better performance. Home energy ratings also can be used to measure code compliance.

The Federal Role

Under the Climate Change Action Plan, the U.S. Department of Energy provides states with technical and financial support to help them update and implement

residential and commercial building energy codes. DOE can provide or assist states with training, development of compliance materials, evaluations of proposed statewide energy codes, and testimony. In addition, the U.S. Environmental Protection Agency works with commercial and residential builders to further improve building energy efficiency and reduce emissions through its ENERGY STAR® Buildings and ENERGY STAR Homes programs.



Sample Energy Code Initiatives

Oregon

Oregon's residential energy code exceeds the 1995 Model Energy Code and is mandatory statewide. A team of experts from more than 20 stakeholder groups developed the code. According to the Oregon Office of Energy, it was designed to provide the lowest housing and energy costs over the life of home mortgages, and each energy efficiency measure in the code will pay for itself through lower energy bills.

Oregon's nonresidential energy code was modified in 1996 to make it simpler for applicants to demonstrate compliance. A recent survey of builders and others in the construction industry found a high degree of acceptance of Oregon's residential and commercial energy codes.

The Oregon Office of Energy estimates that compliance with the residential code will save enough gas and electricity by 2015 to serve 40,000 to 60,000 homes.

Hawaii

Hawaii's state energy code was developed over a two-year period with input from a task force of engineers, architects, building officials, representatives of professional groups, and building owners and managers.

Hawaii's Energy Division estimates that the code will save about \$1.1 million per year in consumer electricity costs. It will reduce fuel use by the equivalent of 21,000 barrels of oil

per year—enough oil to heat, on average, around 15,000 homes in the U.S. for one month. The fuel savings would cut greenhouse gas emissions by approximately 2,800 metric tons of carbon equivalent annually. Cumulative energy savings are expected to reach the equivalent of 350,000 barrels of oil in 2011, enough oil to heat, on average, around 258,000 homes in the U.S. for one month. The savings would reduce greenhouse gas emissions by approximately 47,000 metric tons of carbon equivalent. The Energy Division estimates that the simple payback on compliance with provisions of the energy code is about three-and-a-half years.

For More Information

The U.S. Department of Energy's *Building Standards and Guidelines Program* provides technical assistance, training, compliance materials, and software for both residential and commercial energy codes.

Tel: 800-270-CODE.

Website: <http://www.energycodes.org/>

The nonprofit *Building Codes Assistance Project* provides free assistance to states and municipalities in efforts to adopt and implement commercial and residential energy codes.

Tel: 202-530-2200

Website: <http://www.crest.org/efficiency/bcap>

The U.S. Environmental Protection Agency's *ENERGY STAR Buildings Program* is a voluntary energy-efficiency program for use in commercial buildings.

Tel: 888-STAR-YES

Website: <http://www.epa.gov/buildings/>

The U.S. Environmental Protection Agency's *ENERGY STAR Homes Program* promotes voluntary partnerships with home builders to construct residences that are 30 percent more energy-efficient than those built under the current Model Energy Code.

Tel: 888-STAR-YES

Website: <http://www.epa.gov/appdstar/homes>

EPA's *State and Local Climate Change Program* helps states and communities reduce emissions of greenhouse gases in a cost-effective manner while addressing other environmental problems.

Website: <http://www.epa.gov/globalwarming/> and click on "Public Decision Makers" under the "Visitors Center."

BENEFITS OF ENERGY CODES

- Increased disposable income for owners and tenants.
- More cost-effective operations and lower maintenance costs for building managers.
- Greater market value for energy-efficient buildings.
- Greater tenant appeal for energy-efficient buildings.
- Reduced need for electricity generation.
- Reduced emissions of greenhouse gases and other pollutants.